

REMARKS

The Office Action dated May 6, 2004, has been received and reviewed.

Claims 1-12 are currently pending and under consideration in the above-referenced application, each standing rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections Under 35 U.S.C. § 102(b)

Claims 1-12 stand rejected under 35 U.S.C. § 102(b) for being drawn to subject matter which is purportedly anticipated by the subject matter described in U.S. Patent 6,315,634 to Jensen et al. (hereinafter "Jensen").

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Jensen describes processes for optimizing polishing that include varying one or more parameters such as the hardness and stiffness of a polishing pad, the groove pattern of the polishing pad, the amount of pressure with which a semiconductor substrate is forced against the polishing pad, the rate at which the semiconductor substrate is rotated, the chemical make-up of a polishing slurry, the amount of liquids and solids in the polishing slurry, and the polishing time. Col. 3, line 25, to col. 4, line 46. The surface characteristics of the semiconductor substrate may then be analyzed, and one or more of these parameters tailored to provide desired polishing results, including planarity of the semiconductor substrate, uniformity of the polished surface, and the rate and consistency with which material is removed from the polished surface. Col. 4, line 47, to col. 5, line 28.

Independent claim 1 is drawn to a method that includes generating a force based on analysis of a polished surface of a wafer, then applying the force gradient to a backside of at least one second semiconductor device structure and polishing another semiconductor device structure with the force gradient applied to the backside thereof.

The term “gradient” is defined by the American Heritage Dictionary of the English Language, Fourth Edition (2000, Houghton Mifflin Company), as “[t]he rate at which a physical quantity, such as temperature or pressure, increases or decreases relative to change in a given variable, especially distance.” In independent claim 1, the “gradient” that is generated is applied to the backside of a semiconductor device structure. Thus, as used in independent claim 1, the term “gradient” refers to potential variations in pressure across two or more points on the back side of a semiconductor device structure.

The only mention of pressure in Jensen is that “the pressure at which the polishing pad . . . contacts the wafer . . . can also affect polishing.” Col. 4, lines 43-45. Thus, Jensen does not expressly or inherently describe that a force gradient may be generated based on analysis of the polished surface of the wafer, as would be required to anticipate independent claim 1. Jensen also lacks any express or inherent description of applying the force gradient to a backside of at least one second semiconductor device structure and polishing another semiconductor device structure with the force gradient applied to the backside thereof, as are also required by independent claim 1.

Therefore, the description of Jensen does not anticipate each and every element of independent claim 1, as would be required to maintain the 35 U.S.C. § 102(e) rejection of independent claim 1.

Claims 2-7 are each allowable, among other reasons, for depending either directly or indirectly from claim 1, which is allowable.

Claim 4 is further allowable because Jensen neither expressly nor inherently describes that a pressure gradient may be generated by considering a height of at least one raised area on the active surface of a first semiconductor device structure and considering a rate at which material is removed from a lowermost area of the active surface of the first semiconductor device structure.

Claim 5, which depends from claim 4, is also allowable since Jensen includes no express or inherent description of determining amounts of force to apply to at least two areas of the backside of the at least one second semiconductor device structure so as to facilitate the formation of a substantially planar active surface of the at least one second semiconductor device

structure during polishing thereof. Again, the description of Jensen is limited to merely applying pressure to a polishing pad.

Claim 6 is additionally allowable because Jensen does not expressly or inherently describe applying at least two different amounts of pressure to the backside of a semiconductor device structure.

Independent claim 8 recites a method for compensating for nonplanarities on a surface of a semiconductor device structure during polishing thereof. The method of independent claim 8 includes selectively applying increased amounts of pressure to at least two locations on a backside of at least one second semiconductor device structure relative to pressure applied to other areas of the backside. The at least two locations correspond to raised areas on the active surface of the first semiconductor device structure following polishing of the at least one layer thereof. The method of independent claim 8 also includes polishing the at least one second semiconductor device structure while selectively applying increased amounts of pressure to at least two locations on the backside thereof.

Jensen does not expressly or inherently describe that increased amounts of pressure, relative to an amount of pressure applied elsewhere on the backside of a semiconductor device structure, may be selectively applied to at least two locations on the backside. Again, the description of Jensen is limited to merely applying pressure to a polishing pad.

In addition, Jensen lacks any express or inherent description that the at least two locations to which increased pressure is selectively applied correspond to raised areas on the active surface of another semiconductor device structure, and that polishing may be effected as the increased pressure is being selectively applied to the at least two locations.

Therefore, under 35 U.S.C. § 102(e), independent claim 8 recites subject matter which is allowable over the subject matter described in Jensen.

Each of claims 9-12 is allowable, among other reasons, for depending either directly or indirectly from claim 8, which is allowable.

Claim 9 is additionally allowable since Jensen does not expressly or inherently describe applying a pressure gradient to the backside of the at least one second semiconductor device structure.

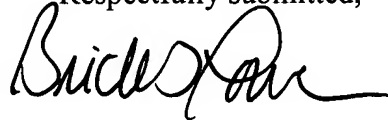
Claim 10 depends from claim 9 and is further allowable since Jensen lacks any express or inherent description that a pressure gradient may be generated based at least partially on a height of at least one raised area on the active surface of a first semiconductor device structure following polishing of the at least one layer of the first semiconductor device structure. Jensen also includes no express or inherent description that a pressure gradient may be generated based on a rate at which material is removed from a lowermost area on the active surface of the first semiconductor device structure following the polishing of the at least one layer of the first semiconductor device structure, as required by claim 10.

In view of the foregoing, it is respectfully requested that the 35 U.S.C. § 102(e) rejections of claims 1-12 be withdrawn.

CONCLUSION

It is respectfully submitted that each of claims 1-12 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brick G. Power", written in a cursive style.

Brick G. Power
Registration No. 38,581
Attorney for Applicant
TRASKBRITT, PC
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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